

IN THE CLAIMS

1-58 (canceled).

59. (previously presented) Apparatus for the administration of a medical gas to a patient comprising a housing, a compressed gas cartridge disposed within said housing and containing a predetermined amount of said medical gas sufficient for normal respiration by said patient, patient supply means for providing said medical gas to said patient, and a cassette, said compressed gas cartridge being mounted on said cassette, said housing including an upper portion and a lower portion connectable with said upper portion in a configuration in which said housing comprises a completely enclosed configuration, and mounting means for mounting said cassette within said housing, said mounting means comprising first acceptance means associated with said housing and said cassette including second acceptance means, whereby said mounting means will only accept said cassette within said second acceptance means which are compatible with said first acceptance means, and said upper and lower portions of said housing are only connectable with each other in said completely enclosed configuration and said upper and lower portions of said housing cannot be connected to each other so as to form said completely enclosed configuration if said second acceptance means is not compatible with said first acceptance means, said compressed gas cartridge having a size and configuration whereby when said housing is in said completely enclosed configuration said compressed gas cartridge is contained entirely within said housing and said compressed gas cartridge can supply said medical gas to said patient from said housing only when said housing is in said completely enclosed configuration.

60. (canceled)

61. (previously presented) The apparatus of claim 59 wherein said first acceptance means comprises first key means

including at least one member selected from the group consisting of a male member and a female member and said second acceptance means comprises second key means including a member selected from the group consisting of the other of said male member and said female member.

62. (original) The apparatus of claim 61 wherein said first key means comprises a plurality of said first key means and said second means comprises a corresponding plurality of said second key means.

63. (previously presented) The apparatus of claim 59 wherein said cassette includes a plurality of said compressed gas cartridges containing a corresponding plurality of medical gases substantially as required for a single dose of said plurality of medical gases.

64. (original) The apparatus of claim 63 wherein said first acceptance means comprises first key means including at least one member selected from the group consisting of a male member and a female member and said second acceptance means comprises second key means including at least one member selected from the group consisting of the other of said male member and said female member.

65. (original) The apparatus of claim 64 wherein said first key means comprises a plurality of said first key means and said second key means comprises a corresponding plurality of said second key means.

66. (previously presented) The apparatus of claim 59 including gas delivery means in said upper portion of said housing for delivering said medical gas to said patient supply means.

67. (original) The apparatus of claim 66 wherein said upper portion of said housing further includes gas control means for controlling said delivery of said medical gas to said patient supply means.

68. (original) The apparatus of claim 66 wherein said gas delivery means includes a blender chamber for receiving said medical gas from said compressed gas cartridge at a predetermined pressure and flow rate.

69. (original) The apparatus of claim 67 wherein said gas control means comprises a gas control sensor for sensing the content of said medical gas, and valve means for terminating said supply of said medical gas based on said sensed content of said medical gas.

70. (original) The apparatus of claim 69 including room air breathing means, whereby upon said terminating of said supply of said medical gas said room air breathing means supplies room air for breathing by said patient.

71. (original) The apparatus of claim 68 including gas control means for controlling said delivery of said medical gas to said patient supply means.

72. (original) The apparatus of claim 71 wherein said gas control means comprises a gas control sensor for sensing the pressure of said medical gas entering said blender chamber, and valve means for terminating said supply of said medical gas based on said sensed pressure of said medical gas.

73. (original) The apparatus of claim 72 including room air breathing means, whereby upon said terminating of said supply of said medical gas said room air breathing means supplies room air for breathing by said patient.

74. (previously presented) The apparatus of claim 72 wherein said gas control means comprises a second gas control means for sensing the pressure of said medical gas leaving said blender chamber, and wherein said valve means terminates said supply of said medical gas based on said sensed pressure of either said gas control means or said second gas control means.

75. (original) The apparatus of claim 74 wherein said gas control means comprises an air inlet port for

permitting air to enter said housing for delivery to said patient supply means and an air intake valve for controlling said entry of said air when said valve means terminates said supply of said medical gas.

76. (withdrawn) Apparatus for the administration of a medical gas to a patient comprising a sealable housing, a cassette including a compressed gas cartridge sealed in said cassette and mountable within said housing when said housing is sealed, said compressed gas cartridge containing a predetermined amount of said medical gas, patient supply means for providing said medical gas to said patient, and gas delivery means for sealably delivering said medical gas from said compressed gas cartridge to said patient only when said housing is sealed.

77. (withdrawn) The apparatus of claim 76 wherein said patient supply means comprises a patient interface.

78. (withdrawn) The apparatus of claim 76 wherein said predetermined amount of said medical gas substantially corresponds to a unit dose of said medical gas for said patient.

79. (withdrawn) The apparatus of claim 76 wherein said housing includes an upper portion and a lower portion, and connecting means for connecting said upper portion of said housing to said lower portion of said housing to thereby seal said housing.

80. (withdrawn) The apparatus of claim 79 wherein said connecting means comprises first thread means at the lower end of said upper portion of said housing and corresponding second thread means at the upper end of said lower portion of said housing.

81. (withdrawn) The apparatus of claim 80 including a sealing surface for providing a gas-tight seal against the upper end of said compressed gas cartridge, puncturing means for puncturing said sealing surface and releasing said medical gas from said compressed gas cartridge, and a slidable plug mounting

said puncturing means for moving said puncturing means between a first position displaced from said sealing surface and a second position puncturing said sealing surface.

82. (withdrawn) The apparatus of claim 81 wherein said upper portion of said housing includes gas input means for accepting said medical gas from said compressed gas cartridge and plug means mounted at the lower end of said upper portion of said housing whereby when said housing is sealed said plug means contacts said slidible plug thereby moving said puncturing means into said second position.

83. (withdrawn) The apparatus of claim 82 wherein said upper portion of said housing includes gas delivery means for delivering said medical gas to said patient supply means.

84. (withdrawn) The apparatus of claim 83 wherein said upper portion of said housing further includes gas control means for controlling said delivery of said medical gas to said patient supply means.

85. (withdrawn) The apparatus of claim 84 wherein said gas delivery means includes a blender chamber for receiving said medical gas from said compressed gas cartridge at a predetermined pressure and flow rate.

86. (withdrawn) The apparatus of claim 85 wherein said gas control means comprises a gas control sensor for sensing the content of said medical gas and valve means for terminating said supply of said medical gas based upon said sensed content of said medical gas.

87. (withdrawn) The apparatus of claim 86 including room air breathing means, whereby upon said terminating of said supply of said medical gas said room air breathing means supplies room air for breathing by said patient.

88. (withdrawn) The apparatus of claim 85 wherein said control means comprises a gas control sensor for sensing the pressure of said medical gas entering said blender chamber,

and valve means for terminating said supply of said medical gas based on said sensed pressure of said medical gas.

89. (withdrawn) The apparatus of claim 88 including room air breathing means, whereby upon said terminating of said supply of said medical gas said room air breathing means supplies room air for breathing by said patient.

90. (withdrawn) The apparatus of claim 88 wherein said gas control means comprises a second gas control sensor for sensing the pressures of said medical gas leaving said blender chamber, and wherein said valve means terminates said supply of said medical gas based on said sensed pressure of either said gas control sensor or said second gas control sensor.

91. (withdrawn) The apparatus of claim 86 wherein said gas control means further comprises an air intake port for permitting air to enter said housing for delivery to said patient supply means and air intake valve means for controlling said entry of said air into said housing.

92. (withdrawn) The apparatus of claim 76 including a plurality of said compressed gas cartridges containing an amount of a plurality of said medical gases substantially required for a single dose of said plurality of medical gases from said patient.

93. (withdrawn) Apparatus for the administration of a medical gas to a patient comprising a housing, a removable compressed gas cartridge within said housing containing a predetermined amount of said medical gas, patient supply means for providing said predetermined amount of said medical gas to said patient, connection means for connecting said compressed gas cartridge with said patient supply means when said compressed gas cartridge is disposed within said housing for supplying said predetermined amount of said medical gas to said patient supply means, a pressure sensor for sensing the pressure of said medical gas released from said compressed gas cartridge,

and control means for preventing delivery of said medical gas to said patient supply means based on the pressure sensed by said pressure sensor.

94. (withdrawn) The apparatus of claim 93 wherein said patient supply means comprises a patient interface.

95. (withdrawn) The apparatus of claim 93 wherein said control means comprises a control valve.

96. (withdrawn) The apparatus of claim 93 wherein said housing comprises an upper portion and a lower portion, and including a connector for connecting said upper portion of said housing to said lower portion of said housing to provide a sealed housing when said upper portion of said housing and said lower portion of said housing are connected to each other.

97. (withdrawn) The apparatus of claim 96 wherein said connector comprises first threads at the lower end of said upper portion of said housing and second interconnecting threads at the upper end of said lower portion of said housing.

98. (withdrawn) The apparatus of claim 94 wherein said patient interface includes a patient output gas port.

99. (withdrawn) Apparatus for the administration of a medical gas to a patient comprising a housing, a removable compressed gas cartridge within said housing containing a predetermined amount of said medical gas, and a patient interface for providing said predetermined amount of said medical gas to said patient, said apparatus having an overall weight of less than about 48 ounces.

100. (withdrawn) The apparatus of claim 99 having an overall weight of less than about 24 ounces.

101. (withdrawn) The apparatus of claim 99 including a plurality of said compressed gas cartridges, each of said compressed gas cartridges containing a predetermined amount of said medical gas, and a cassette for insertion into said

housing, said plurality of said compressed gas cartridges being mounted on said cassette and sealed within said cassette.

102. (withdrawn) The apparatus of claim 101 wherein said housing includes access means whereby said cassette may be inserted into and removed from said housing.

103. (withdrawn) The apparatus of claim 102 wherein said access means comprises an upper portion of said housing and a lower portion of said housing connectable with said upper portion of said housing to provide a sealed housing thereby.

104. (withdrawn) The apparatus of claim 102 wherein said access means comprises an openable and closable door in said housing to provide a sealed housing thereby.

105. (withdrawn) The apparatus of claim 104 wherein said openable and closable door comprises a bottom portion of said housing.

106. (withdrawn) Apparatus for the administration of a medical gas to a patient comprising a housing, a removable cassette removably mounted within said housing, said removable cassette including at least one compressed gas cartridge containing a predetermined amount of said medical gas, patient supply means for providing said predetermined amount of said medical gas to said patient, mounting means for mounting said removable cassette within said housing, said mounting means comprising first acceptance means and said removable cassette including second acceptance means whereby said mounting means will only accept said removable cassette having second acceptance means which are compatible with said first acceptance means.

107. (withdrawn) The apparatus of claim 106 wherein said cassette includes a plurality of said compressed gas cartridges.

108. (withdrawn) The apparatus of claim 107 wherein said first acceptance means comprises first key means including

at least one member selected from the group consisting of a male member and a female member, and said second acceptance means comprises second key means including a member selected from the group consisting of the other of said male member and said female member.

109. (withdrawn) The apparatus of claim 107 wherein said mounting means comprises a disk member including said first acceptance means, and a spindle rotatably mounting said disk member within said housing.

110. (withdrawn) The apparatus of claim 109 wherein said mounting means includes a base mounted within said housing, said spindle being rotatably mounted on said base.

111. (withdrawn) The apparatus of claim 110 wherein said disk member is removably mounted on said base, whereby said disk member can be removed from said housing and replaced by a different disk member having a different first acceptance means.

112. (withdrawn) The apparatus of claim 111 wherein said cassette includes first indicia and said disk member includes corresponding second indicia for matching said cassette with said disk member.

113. (withdrawn) The apparatus of claim 112 wherein said first and second indicia comprise coded colors.

114. (withdrawn) The apparatus of claim 112 wherein said first and second indicia are selected from the group consisting of numbers and letters.

115. (withdrawn) Apparatus for the administration of a medical gas to a patient comprises a housing including an upper portion and a lower portion, a removable cassette holding at least one compressed gas cartridge within said housing, said at least one compressed gas cartridge including a predetermined amount of said medical gas, patient supply means for providing said predetermined amount of said medical gas to said patient, connection means for sealingly connecting said upper portion of

said housing to said lower portion of said housing with said cassette within said housing, said connecting means including first upper connecting means disposed at said lower end of said upper portion of said housing, second upper connecting means disposed above said first upper connecting means on said upper portion of said housing, first lower connecting means disposed at the upper end of said lower portion of said housing, second lower connecting means disposed below said first lower connecting means on said lower portion of said housing, said first upper connecting means adapted to cooperatively engage said second lower connecting means to provide an intermediate closed configuration for said housing, and said second upper connecting means adapted to cooperatively engage said first lower connecting means to provide a sealed configuration for said housing, the distances between said first and second upper connecting means and said first and second lower connecting means being adapted so that said first upper connecting means engages said second lower connecting means before said second upper connecting means engages said first lower connecting means.

116. (withdrawn) The apparatus of claim 115 wherein said housing includes cassette mounting means for mounting said removable cassette within said housing, said cassette mounting means comprising first acceptance means and said cassette including second acceptance means whereby said cassette mounting means will only accept said cassette having second acceptance means which are compatible with said first acceptance means.

117. (withdrawn) The apparatus of claim 116 wherein said first acceptance means comprises first key means including at least one member selected from the group consisting of a male member and a female member, and said second acceptance means comprises second key means including a member selected from the

group consisting of the other of said male member and said female member.

118. (withdrawn) The apparatus of claim 117 wherein said first key means comprises a plurality of said first key means and said second key means comprises a corresponding plurality of said second key means.

119. (withdrawn) The apparatus of claim 118 wherein said compressed gas cartridge includes a puncturable sealing member for sealing said medical gas within said compressed gas cartridge, and further including compressed gas cartridge opening means for releasing said medical gas from said compressed gas cartridge, said compressed gas cartridge opening means comprising a puncturing member movable between a first position in which said puncturing member is displaced from said sealing member and a second position in which said puncturing member has punctured said sealing member.

120. (withdrawn) The apparatus of claim 119 wherein said upper portion of said housing includes a contact surface for causing said puncturing member to move to said second position when said second upper contact member engages said first lower contact member to produce said sealed configuration for said housing.

121. (withdrawn) The apparatus of claim 120 wherein each of said first and second upper and lower contact members comprise threads.

122. (withdrawn) The apparatus of claim 121 wherein said cooperative engagement of said first upper contact member with said second lower contact member comprises threadable engagement in a first direction of rotation and said cooperative engagement of said second upper contact member with said first lower contact member comprises threadable engagement in a second opposite rotational direction.

123. (withdrawn) The apparatus of claim 120 wherein said upper portion of said housing includes first alignment means and said lower portion of said housing includes second alignment means adapted to cooperate with said first alignment means in order to properly align said upper and lower portions of said housing.

124. (withdrawn) The apparatus of claim 123 wherein said first alignment means comprises a raised extension and said second alignment means comprises a corresponding slot adapted to receive said raised extension.

125. (withdrawn) The apparatus of claim 123 wherein said first alignment means comprises a slot and said second alignment means comprises a raised extension adapted to fittingly engage said slot.

126. (withdrawn) The apparatus of claim 123 including a plurality of said first alignment means and a corresponding plurality of said second alignment means.

127. (withdrawn) Apparatus for the administration of a medical gas to a patient comprising a housing, a removable cassette within said housing, said removable cassette including a plurality of compressed gas cartridges sealed therein, each of said plurality of compressed gas cartridges including a predetermined amount of a portion of said medical gas, patient supply means for providing said medical gas to said patient, said housing including an upper portion and a lower portion connectable to said upper portion in a configuration in which said housing is closed, said removable cassette being mounted in said lower portion of said housing, and a plurality of gas connection members corresponding to said plurality of compressed gas cartridges and mounted in said upper portion of said housing whereby when said upper portion of said housing is connected to said lower portion of said housing said plurality of gas

connection members connect said upper portion of said housing with said corresponding plurality of compressed gas cartridges.

128. (withdrawn) The apparatus of claim 127 wherein each of said plurality of compressed gas cartridges includes a sealing member for sealing said predetermined amount of said portion of said medical gas within said compressed gas cartridges.

129. (withdrawn) The apparatus of claim 128 wherein each of said plurality of gas connection members includes puncturing means for puncturing said corresponding plurality of sealing members.

130. (withdrawn) The apparatus of claim 129 wherein said upper portion of said housing includes a plurality of gas input ports for receiving said portions of said medical gas from said corresponding plurality of puncturing means.

131. (withdrawn) The apparatus of claim 130 wherein said upper portion of said housing includes a blending chamber for receiving said portions of said medical gas from said plurality of gas input ports.

132. (withdrawn) The apparatus of claim 131 wherein said upper portion of said housing includes a common feed tube for feeding said medical gas to said blending chamber.

133. (withdrawn) Apparatus for the administration of a medical gas to a patient comprising a housing, a cassette mountable within said housing, said cassette including at least one compressed gas cartridge sealed therein containing a predetermined amount of said medical gas, patient supply means for supplying said predetermined amount of said medical gas to said patient, and gas delivery means for delivering said medical gas from said cassette to said patient supply means.

134. (withdrawn) The apparatus of claim 133 wherein said gas delivery means includes gas control means for

controlling said delivery of said medical gas to said patient supply means.

135. (withdrawn) The apparatus of claim 134 wherein said gas delivery means includes a blender chamber for receiving said medical gas from said at least one compressed gas cartridge at a predetermined pressure and flow rate.

136. (withdrawn) The apparatus of claim 135 wherein said gas control means comprises a gas control sensor for sensing the content or pressure of said medical gas, and valve means for terminating said supply of said medical gas based on said sensed content or pressure of said medical gas.

137. (withdrawn) The apparatus of claim 136 wherein said gas control means comprises an air inlet port for permitting air to enter said housing for delivery to said patient supply means and an air intake valve for controlling said entry of said air into said housing.

138. (withdrawn) Apparatus for the administration of a medical gas to a patient comprising a housing, a compressed gas cartridge mountable within said housing containing a predetermined amount of said medical gas, and gas delivery means for delivering said medical gas from said compressed gas cartridge to said patient, said gas delivery means including a gas sensor for sensing a predetermined property of said medical gas, a blender chamber for receiving said medical gas from said compressed gas cartridge, a first valve for controlling the flow of said medical gas from said blender chamber to said patient and a second valve for controlling the flow of air into said housing for delivery to said patient, whereby said sensed value of said predetermined property of said medical gas controls said first and second valves for delivering either said medical gas or said air to said patient.

139. (withdrawn) The apparatus of claim 138 wherein said gas sensor comprises an oxygen sensor for sensing the oxygen content of said medical gas.

140. (withdrawn) The apparatus of claim 138 including alarm means for advising said patient if said gas sensor does not sense said predetermined property of said medical gas.

141. (withdrawn) The apparatus of claim 138 including a patient output gas port for delivering said medical gas from said housing to said patient.

142. (withdrawn) The apparatus of claim 138 including a demand valve for delivering said medical gas from said housing to said patient based upon the inhalation pressure created by said patient.

143. (withdrawn) The apparatus of claim 142 including a face mask for sealing said gas delivery means directly to said patient's face.

144. (withdrawn) Apparatus for the administration of a predetermined amount of a medical gas to a patient comprising a housing, at least one compressed gas cartridge mountable within said housing containing said medical gas, gas collection means for collecting said predetermined amount of said medical gas at a location separate from said at least one compressed gas cartridge, and gas delivery means for delivering said predetermined amount of said medical gas to said patient from said separate location.

145. (withdrawn) The apparatus of claim 144 wherein said gas collection means comprises a blender chamber.

146. (withdrawn) The apparatus of claim 145 including gas control means for controlling said delivery of said medical gas to said patient.

147. (withdrawn) The apparatus of claim 146 wherein said gas control means comprises a gas control sensor for sensing the property of said medical gas entering said blender

chamber and valve means for terminating said supply of said medical gas based upon said sensed value of said medical gas.

148. (withdrawn) The apparatus of claim 147 including room air breathing means, whereby upon said terminating of said supply of said medical gas said room air breaching means supplies room air for breathing by said patient.

149. (withdrawn) The apparatus of claim 148 wherein said gas control means comprises an air inlet port for permitting air to enter said housing for delivery to said patient and an air intake valve for controlling said entry of said air when said valve means terminates said supply of said medical gas.

150. (withdrawn) The apparatus of claim 146 wherein said gas control means comprises a manual gas control member.

151. (withdrawn) The apparatus of claim 150 wherein said manual gas control member is selected from the group consisting of a button, switch and lever.

152. (withdrawn) The apparatus of claim 144 wherein said predetermined amount of said medical gas comprises a bolus of said medical gas.

153. (withdrawn) The apparatus of claim 152 wherein said bolus comprises from 25 to 200 ml of said medical gas.

154. (previously presented) Apparatus for the administration of a medical gas to a patient comprising a housing, a compressed gas cartridge disposed within said housing and containing a predetermined amount of said medical gas sufficient for normal respiration by said patient, patient supply means for providing said medical gas to said patient, said housing including an upper portion and a lower portion connectable with said upper portion in a configuration in which said housing comprises a completely enclosed configuration, and gas delivery means in said upper portion of said housing for delivering said medical gas to said patient supply means, said

compressed gas cartridge having a size and configuration whereby when said housing is in said completely enclosed configuration said compressed gas cartridge is contained entirely within said housing and is not accessible from the outside of said housing and said compressed gas cartridge can supply said medical gas to said patient from said housing only when said housing is in said completely enclosed configuration.

155. (previously presented) The apparatus of claim 154 wherein said upper portion of said housing further includes gas control means for controlling said delivery of said medical gas to said patient supply means.

156. (previously presented) The apparatus of claim 154 wherein said gas delivery means includes a blender chamber for receiving said medical gas from said compressed gas cartridge at a predetermined pressure and flow rate.

157. (previously presented) The apparatus of claim 155 wherein said gas control means comprises a gas control sensor for sensing the content of said medical gas, and valve means for terminating said supply of said medical gas based on said sensed content of said medical gas.

158. (previously presented) The apparatus of claim 157 including room air breathing means, whereby upon said terminating of said supply of said medical gas said room air breathing means supplies room air for breathing by said patient.

159. (previously presented) The apparatus of claim 156 including gas control means for controlling said delivery of said medical gas to said patient supply means.

160. (previously presented) The apparatus of claim 159 wherein said gas control means comprises a gas control sensor for sensing the pressure of said medical gas entering said blender chamber, and valve means for terminating said supply of said medical gas based on said sensed pressure of said medical gas.

161. (previously presented) The apparatus of claim 160 including room air breathing means, whereby upon said terminating of said supply of said medical gas said room air breathing means supplies room air for breathing by said patient.

162. (previously presented) The apparatus of claim 160 wherein said gas control means comprises second gas control means for sensing the pressure of said medical gas leaving said blender chamber, and wherein said valve means terminates said supply of said medical gas based on said sensed pressure of either said gas control means or said second gas control means.

163. (previously presented) The apparatus of claim 162 wherein said gas control means comprises an air inlet port for permitting air to enter said housing for delivery to said patient supply means and an air intake valve for controlling said entry of said air when said valve means terminates said supply of said medical gas.

164. (previously presented) Apparatus for the administration of a medical gas to a patient comprising a housing, a compressed gas cartridge disposed within said housing and containing a predetermined amount of said medical gas at a predetermined pressure sufficient for normal respiration by said patient, patient supply means for providing said medical gas to said patient, gas delivery means for delivering said medical gas from said compressed gas cartridge to said patient supply means, said gas delivery means including a blender chamber for receiving said medical gas from said compressed gas cartridge and for maintaining said medical gas at a substantially reduced pressure as compared to said predetermined pressure, and a demand valve for delivering said medical gas from said blender chamber to said patient based upon the inhalation pressure created by said patient, said housing including an upper portion and a lower portion connectable with said upper portion in a

configuration in which said housing comprises a completely enclosed configuration, whereby said compressed gas cartridge is fully enclosed within said housing and access to said compressed gas cartridge is prevented.

165. (previously presented) The apparatus of claim 164 including a cassette, said compressed gas cartridge being mounted on said cassette, said housing including mounting means for mounting said cassette within said housing, said mounting means comprising first acceptance means and said cassette including second acceptance means, whereby said mounting means will only accept said cassette having second acceptance means which are compatible with said first acceptance means, and said housing can only close if said first acceptance means and said second acceptance means are compatible with each other.

166. (previously presented) The apparatus of claim 165 wherein said first acceptance means comprises first key means including at least one member selected from the group consisting of a male member and a female member and said second acceptance means comprises second key means including a member selected from the group consisting of the other of said male member and said female member.

167. (previously presented) The apparatus of claim 166 wherein said first key means comprises a plurality of said first key means and said second means comprises a corresponding plurality of said second key means.